

John Asher Johnson

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Education

University of California, Berkeley

Ph.D. Astrophysics May 2007

Thesis: *Planet Hunting In New Stellar Domains*

Advisor: Geoffrey W. Marcy

M.A. Astrophysics December 2002

University of Missouri-Rolla

B.S. Physics (Mathematics minor) December 1999

Employment History

NSF Astronomy and Astrophysics Postdoctoral Fellowship 2007-present

Graduate Research Assistant, UC Berkeley 2001-2007

Research Scientist, LIGO Project, Caltech Jan 2000 – August 2000

Honors and Awards

UC Berkeley Uhl Prize for Outstanding Scholarly Achievement

UC Berkeley Chancellor's Opportunity Fellowship

UC Berkeley Outstanding Graduate Student Instructor Award

UC Berkeley Teaching Effectiveness Award

University of Missouri-Rolla Bright Flight Scholar

University of Missouri-Rolla Dean's List

Karl Hasselman Scholarship (UMR)

Minority Engineering Program Scholarship (UMR)

Collaborators

Please refer to final page for summaries of collaborative efforts

Geoff Marcy (UC Berkeley)

Josh Winn (MIT)

Debra Fischer (San Francisco State University)

Andrew Howard (UC Berkeley)

Jason Wright (Cornell)

Kathryn Peek (UC Berkeley)

Jeff Valenti (STScI)

Jay Anderson (STScI)

Nikolai Piskunov (Uppsala University, Sweden)

Sabine Reffert (ZAH – Landessternwarte, Germany)

Michael Liu (UH Institute for Astronomy)

John Tonry (UH Institute for Astronomy)

Publications (1st and 2nd author)

As of Nov 21, 2008, I have 11 refereed, first-author publications (148 citations), 32 total refereed publications (1085 citations), and my h-index is 18 (for all refereed publications). For links to the filtered ADS listings of all my papers please refer to <http://ifa.hawaii.edu/~johnjohn/Research.html>

A Smaller Radius for the Transiting Exoplanet WASP-10b

Johnson, J. A., Winn, J. N., Cabrera, N., E., Carter, J. 2008, ApJ Letters, submitted Oct 23
Preprint available at: <http://ifa.hawaii.edu/~johnjohn/wasp10.pdf>

Measurement of the Spin-Orbit Angle of Exoplanet HAT-P-1b

Johnson, J. A., Winn, J. N., Narita, N., Enya, K., et al., 2008, ApJ, 686, 649

The Prograde Orbit of Exoplanet TrES-2b

Winn, J. N., Johnson, J. A., Narita, N., Suto, Y., Turner, E. L., et al., 2008, ApJ, 682, 1283

Retired A Stars and Their Companions II: Jovian planets orbiting kappa CrB and HD167042

Johnson, J. A., Marcy, G. W., Fischer, D. A., et al., 2008, ApJ, 675, 784

Planets Around Massive Subgiants

Johnson, J. A., 2008, ASP Conference Series: Extreme Solar Systems, 398, 59

A New Planet Around an M Dwarf: Revealing a Correlation Between Exoplanets and Stellar Mass

Johnson, J. A., Butler, R. P., Marcy, G. W., Fischer, et al., 2007, ApJ, 670, 833

Retired A Stars and Their Companions: Exoplanets Orbiting Three Intermediate-Mass Subgiants

Johnson, J. A., Fischer, D. A., Marcy, G. W., Butler, R. P., Wright, et al., 2007, ApJ, 665, 785

An Eccentric Hot Jupiter Orbiting the Subgiant HD 185269

Johnson, J. A., Marcy, G. W., Fischer, D. A., Henry, G., Wright, J. T. et al. 2006, ApJ, 652, 1724

The N2K Consortium VI: Doppler Shifts Without Templates and Three New Short-Period Planets

Johnson, J. A., Marcy, G. W., Fischer, D., Laughlin, G., Butler, R. P., et al. 2006, ApJ, 647, 600

A Long-period Jupiter-mass Planet Orbiting the Nearby M Dwarf GL 849

Butler, R. P., Johnson, J. A., Marcy, G. W., Wright, J. T., Vogt, S. S., Fischer, D. A., 2006, PASP, 118, 1685

Spin-Orbit Alignment for the Eccentric Exoplanet HD 147506b

Winn, J. N., Johnson, J. A., Peek, K. M. G., Marcy, G. W., 2007, ApJ, 665L, 167

Measurement of the Spin-Orbit Alignment in the Exoplanetary System HD 189733

Winn, J. N., Johnson, J. A., Marcy, G. W., et al. 2006, ApJL, 653, L69

KH 15D: A Spectroscopic Binary

Johnson, J. A., Marcy, G. W., Hamilton, C. M., Herbst, W., & Johns-Krull, C. M. 2004, AJ, 128, 1265

The History of the Mysterious Eclipses of KH 15D: Asiago Observatory, 1967-1982

Johnson, J. A. & Winn, J. N. 2004, AJ, 127, 2344

The History of the Mysterious Eclipses of KH 15D II.

Johnson, J. A., Winn, J. N., Rampazzi, F., Barbieri, C., Mito, H., et al. 2005, AJ, 129, 1978

Other Publications

Five Planets Orbiting 55 Cancri

Fischer, D. A.; Marcy, G. W.; Butler, R. P.; Vogt, S. S.; Laughlin, G.; Henry, G. W.; Abouav, D.; Peek, K. M. G.; Wright, J. T.; Johnson, John A., et al. 2008 ApJ, 675, 790

HAT-P-10b: A light and moderately hot Jupiter transiting a K dwarf

Bakos, G. A.; Pal, A.; Torres, G.; Sipocz, B.; Latham, D. W.; Noyes, R. W.; Kovacs, Geza; Hartman, J.; Esquerdo, G. A.; Fischer, D. A.; Johnson, J. A., et a. 2008 arXiv:0809.4295

HD 147506b: A Supermassive Planet in an Eccentric Orbit Transiting a Bright Star

Bakos, G. Á.; Kovács, G.; Torres, G.; Fischer, D. A.; Latham, D. W.; Noyes, R. W.; Sasselov, D. D.; Mazeh, T.; Shporer, A.; Butler, R. P.; Johnson, J. A. et al., 2007 ApJ, 670, 826

HAT-P-1b: A Large-Radius, Low-Density Exoplanet Transiting One Member of a Stellar Binary

Bakos, G. Á.; Noyes, R. W.; Kovács, G.; Latham, D. W.; Sasselov, D. D.; Torres, G.; Fischer, D. A.; Stefanik, R. P.; Sato, B.; Johnson, J. A., 2007 ApJ, 656, 552

The Transit Light Curve Project. VII. The Not-So-Bloated Exoplanet HAT-P-1b

Winn, J. N., Holman, M. J., Bakos, G., Pal, A., Johnson, J. A., et al. 2007 AJ, 134, 1707

The N2K Consortium. III. Short-Period Planets Orbiting HD 149143 and HD 109749

Fischer, D.A., Laughlin, G., Marcy, G.W., Butler, R.P., Vogt, S.S., Johnson, J.A., 2006 ApJ, 637, 1094

The Orbit and Occultations of KH 15D

Winn, J. N.; Hamilton, C. M.; Herbst, W. J.; Hoffman, J. L.; Holman, M. J.; Johnson, J. A.; Kuchner, M. J., 2006 ApJ, 644, 510

The N2K Consortium. II. A Transiting Hot Saturn around HD 149026 with a Large Dense Core

Sato, B; Fischer, D. A.; Henry, G. W.; Laughlin, G.; Butler, R. P.; Marcy, G. W.; Vogt, S. S.; Bodenheimer, P.; Ida, S.; Toyota, E.; Wolf, A.; Valenti, J. A.; Boyd, L. J.; Johnson, J. A., et al. 2005 ApJ, 633, 465

The N2K Consortium. I. A Hot Saturn Planet Orbiting HD 88133

Fischer, D. A.; Laughlin, G.; Butler, P.; Marcy, G.; Johnson, J., et al. 2005 ApJ, 620, 481

Five New Multicomponent Planetary Systems

Vogt, S. S.; Butler, R. P.; Marcy, G. W.; Fischer, D. A.; Henry, G. W.; Laughlin, G.; Wright, J. T.; Johnson, J. A. 2005 ApJ 632, 638

Measurement of Spin-Orbit Alignment in an Extrasolar Planetary System

Winn, J. N.; Noyes, R. W.; Holman, M. J.; Charbonneau, D.; Ohta, Y.; Taruya, A.; Suto, Y.; Narita, N.; Turner, E. L.; Johnson, J. A. 2005 ApJ, 631, 1215

Five New Extrasolar Planets

Marcy, G. W.; Butler, R. P.; Vogt, S. S.; Fischer, D. A.; Henry, G. W.; Laughlin, G.; Wright, J. T.; Johnson, J. A. 2005 ApJ, 619, 570

KH 15D: Gradual Occultation of a Pre-Main-Sequence Binary

Winn, J. N., Holman, M. J., Johnson, J. A., Stanek, K. Z., & Garnavich, P. 2004, ApJ, 603, 45

Teaching and Advising Experience

- 2008 *Research Mentor, Astronomy 699*
I am mentoring Brendan Bowler, a second-year graduate student in the IfA Ay699 course. The course is designed to introduce students to astrophysical research through a self-contained project lasting 12 months. Brendan is working on a statistical analysis of the semimajor axis distribution of planets around massive stars. http://ifa.hawaii.edu/gradprog/astro_699.htm
- 2008 *Research Mentor, University of Hawaii NSF REU*
During the summer of 2008 I mentored two undergraduate students as part of the Research Experience for Undergraduates program. I designed and supervised research projects for Nicole Cabrera (Georgia Tech) and Terreka Hart (Tennessee State University). Nicole's work is featured in a recently submitted ApJ Letter (see publication list) and an upcoming AAS poster.
- 2008 *Lecturer, University of Hawaii HI-STAR Program*
During the summer of 2008 I taught a lab section on transiting exoplanets for a high-school summer outreach program for native Hawaiian students.
- 2005 *Lecturer, UC Berkeley Astronomy Dept.*
In the Fall of 2005 I taught a new 3-credit-hour astronomy course: Introduction to IDL Computer Programming. A fundamental tool of modern astronomy is computer programming, yet most astronomy programs lack a computer science course. To fill this conspicuous gap I designed a new course to teach students proper computer programming skills. My tasks involved the preparation of a weekly 2-hour lecture to class of 20 students (17 undergrad, 3 grad); writing and grading weekly problem sets; and holding weekly office hours.
- 2000-2005 *Instructor, UC Berkeley Multicultural Engineering Program Summer Boot Camp*
I designed a course syllabus, prepared homework assignments and taught lecture sections for a summer preparatory physics course for incoming minority engineering and science students.
- 2002 *Instructor, UC Berkeley Upward Bound Program*
I taught 3 physics classes for summer college preparatory program for minority and underprivileged high school students.
- 2000 *Founder of The Astronomy Learning Center (TALC) at UC Berkeley*
TALC is a large, collaborative "office hour" where students work on their homework assignments in an informal, group setting. TALC is staffed by GSIs who serve as guides, rather than tutors, in helping student groups with their homework problems. TALC is now used for all introductory courses in the Berkeley Astronomy Dept.
<http://astro.berkeley.edu/resources/campbell/talc/>
- 2001 *Head Graduate Student Instructor, UC Berkeley Astronomy Dept.*
I coordinated the day-to-day administration of 800-student introductory astronomy course for non-majors. I maintained quality of instruction in discussion sections, organized stargazing nights, served as a substitute lecturer, and was a liaison between students and instructors.
- 2000-2001 *Graduate Student Instructor, UC Berkeley*
I worked as a teaching assistant during 2 semesters for the Ay10 Intro to Astronomy course, a semester for the Ay7 Intro course for majors, and a semester for the Ay120 Advanced Optical Observing Lab course.

Invited Talks

Unraveling the Mystery of a Mysterious Winking Star, San Francisco State Colloquium, Sept 2004

Exploring the Relationship Between Stellar Mass and Planet Formation, Princeton ISM
Lunch Talk, Apr 16, 2007

Exploring the Relationship Between Stellar Mass and Planet Formation, Harvard CfA OIR
Seminar Talk, Apr 19, 2007

Planets Around Massive Subgiants, Extreme Solar Systems Conference, Santorini, June 25, 2007

Massive Worlds Orbiting Massive Suns, NSF AAPF Symposium, Jan 7, 2008

Retired A Stars and Their Planets, JPL Astrophysics Colloquium Series, Feb 14, 2008

Planet Hunting in New Stellar Domains, U. Washington-Seattle Colloquium, Apr 10, 2008

Planet Hunting in New Stellar Domains, UH Institute for Astronomy, Oct 10, 2007

Massive Planets Around Massive Stars, UH Astrobiology Institute Seminar Series, Mar 31, 2008

***Other Worlds*, UH Frontiers of Astronomy Community Lecture, Jun 30, 2008**

Collaborations

Planets Around Massive Stars- I am conducting a multi-site Doppler survey of massive subgiant stars to study the relationships between stellar mass and exoplanets. I am collaborating with the CPS team members at Keck Observatory; Sabine Reffert (ZAH, Germany), Katie Peek (UCB) and Thomas Lowe (UCO-Lick) at Lick Observatory; Josh Winn (MIT) at Magellan Observatory; and Robert Wittenmyer and Chris Tinney at the Anglo-Australian Observatory. Please see my Research Statement for further details.

California Planet Search (CPS)- The CPS is a large team effort that serves as an umbrella for many of the planet search programs at Keck observatory. My fellow CPS team members are Geoff Marcy (UCB), Debra Fischer (SFSU), Andrew Howard (UCB), Gaspar Bakos (CfA), Jason Wright (Cornell), Jeff Valenti (STScI), Jay Anderson (STScI) and Nikolai Piskunov (Uppsala, Sweden). My primary role is to operate and maintain the Doppler reduction pipeline that produces next-day RV measurements for the various planet searches. I also oversee the NASA Keck M Dwarfs Planet Search.

Measuring Exoplanet Spin-Orbit Angles- I am working with Josh Winn (MIT), Ed Turner (Princeton) and Norio Narita (U. of Tokyo) to use precise radial velocity measurements from Keck/HIRES and Subaru/HDS to measure the sky-projected angle between the stellar spin axis and planet orbit normal for transiting planetary systems. We take advantage of the anomalous Doppler shift known as the Rossiter-McLaughlin effect, which occurs during transit when the planet blocks the approaching and receding limbs of the rotating stellar surface. Our ultimate goal is to compare the observed distribution of spin-orbit angles to the predictions made by theoretical models of planet migration.

The HAT-Net Wide-Field Transit Search- I am collaborating with Gaspar Bakos (CfA), Willie Torres (CfA) and the HAT-Net planet search team. I run the Doppler reductions for their Keck/HIRES observations, and I measure follow-up light curves of transit candidates using the UH 2.2m telescope.